

WHAT IS CLAIMED IS:

1. A beverage dispensing cooling system for dispensing chilled beverages comprising:

a reservoir containing a supply of refrigerant;

5 a cold plate in the fluid communication with said refrigerant reservoir, wherein the refrigerant lines extend through said cold plate;

an accumulator;

a compressor;

a refrigerant condenser, and

10 a thermal expansion valve positioned between said refrigerant reservoir and said cold plate to adjust the flow of refrigerant depending upon the temperature of the cold plate.

2. The beverage dispensing cooling system of Claim 1 wherein refrigerant is pumped from the reservoir through the expansion valve and the cold plate to the  
15 accumulator from where it passes through the compressor and then is pumped through the refrigerant condenser and is returned to the reservoir.

3. The beverage dispensing cooling system of Claim 1 further including a pressure switch for controlling the on/off operation of the compressor depending upon the measured pressure of the refrigerant within the cold plate.

4. The beverage dispensing cooling system of Claim 3 wherein beverage lines extend through the cold plate and are in a heat exchange relationship with the refrigerant lines.

5. The beverage dispensing cooling system of Claim 3 further including a time delay relay for delaying the restart of the compressor for a predetermined time period after the compressor is turned off by said pressure switch.

6. The beverage dispensing cooling system of Claim 1 further including a defrost bypass circuit.

7. A beverage dispensing system for dispensing chilled beverages comprising:

10 a housing;

one or more beverage inlet connections extending from said housing;

a beverage cooling system positioned with said housing, said cooling system comprising:

a reservoir containing a supply of refrigerant;

15 a cold plate in fluid communication with said refrigerant reservoir wherein the refrigerant lines extend through said cold plate;

an accumulator;

a compressor;

a refrigerant condenser;

a thermal expansion valve positioned between said refrigerant reservoir and said cold plate to adjust the flow of refrigerant depending upon the temperature of the cold plate, wherein beverage lines extend between said beverage inlet connections and beverage dispensing outlets, said beverage lines passing through said cold plate in a heat exchange relationship with the refrigerant lines.

8. A beverage dispensing cooling system for dispensing chilled beverages comprising:

a reservoir containing a supply of refrigerant;

a cold plate in the fluid communication with said refrigerant reservoir, said cold plate comprising:

a refrigerant conducting conduit having an inlet, an outlet, and a heat exchanging section between the inlet and the outlet, said heat exchanging section formed in a reciprocating pattern; and

a beverage circulating system comprising an inlet, an outlet, and a plurality of conduits in a heat exchanging relationship with the refrigerant conducting conduit, said beverage circulating system further comprising a plurality of fluid dividing stages on an upstream side of the beverage circulating system beginning at said inlet, and a plurality of fluid consolidation stages on a downstream side of the beverage circulating system ending at said outlet, each dividing stage exactly doubling the number of conduits immediately upstream of the dividing stage and each consolidating stage exactly halving the number of conduits immediately downstream of the diving stage;

wherein each dividing stage and each consolidation stage includes a Y-coupling to equally divide the flow on the upstream side and to conjoin the flow on the downstream side of the beverage circulating system;

an accumulator;

5 a compressor;

a refrigerant condenser, and

a thermal expansion valve positioned between said refrigerant reservoir and said cold plate to adjust the flow of refrigerant depending upon the temperature of the cold plate.

10 9. A beverage dispensing system for dispensing chilled beverages comprising:

a housing;

one or more beverage inlet connections extending from said housing;

15 a beverage cooling system positioned with said housing, said cooling system comprising:

a reservoir containing a supply of refrigerant;

a cold plate in fluid communication with said refrigerant reservoir, said cold plate comprising:

a refrigerant conducting conduit having an inlet, an outlet, and a heat exchanging section between the inlet and the outlet, said heat exchanging section formed in a reciprocating pattern; and

5 a beverage circulating system comprising an inlet, an outlet, and a plurality of conduits in a heat exchanging relationship with the refrigerant conducting conduit, said beverage circulating system further comprising a plurality of fluid dividing stages on an upstream side of the beverage circulating system beginning at said inlet, and a plurality of fluid consolidation stages on a downstream side of the beverage circulating system ending at said outlet, each dividing stage exactly doubling the number of conduits  
10 immediately upstream of the dividing stage and each consolidating stage exactly halving the number of conduits immediately downstream of the diving stage;

wherein each dividing stage and each consolidation stage includes a Y-coupling to equally divide the flow on the upstream side and to conjoin the flow on the downstream side of the beverage circulating system;

15 an accumulator;

a compressor;

a refrigerant condenser;

a thermal expansion valve positioned between said refrigerant reservoir and said cold plate to adjust the flow of refrigerant depending upon the temperature of the cold plate, wherein beverage lines extend between said beverage inlet connections and  
20 beverage dispensing outlets, said beverage lines passing through said cold plate in a heat exchange relationship with the refrigerant lines.